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EXAMINER	
ADAMS, CHARLES D	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Advisory Action Before the Filing of an Appeal Brief	**Application No.** 10/816,011	**Applicant(s)** RADESTOCK ET AL.	
	Examiner Charles D. Adams	**Art Unit** 2164	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 12 June 2007 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:
   a) ☒ The period for reply expires *3* months from the mailing date of the final rejection.
   b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

   Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   (a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   (b) ☐ They raise the issue of new matter (see NOTE below);
   (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: ____. (See 37 CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
   The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: _____.
   Claim(s) objected to: _____.
   Claim(s) rejected: *1-3, 5- 9, 11-15, 16-18, and 20-23*.
   Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). _____
13. ☒ Other: See Continuation Sheet.

Continuation of 11. does NOT place the application in condition for allowance because: Applicant argues that Gharachorloo et al. does not teach executing the query on a subset, or on a larger set of the database, with regard to an estimate. In response to this argument, Examiner notes that the 'standard index' of Gharachorloo et al. is a subset of the indices, as there exist extended indices as well. Gharachorloo et al. teaches that an estimate may be generated by using a sample index or the standard index. This estimate is used to determine whether enough results will be generated. If the estimate indicates that there are not enough results in the standard index, the query will be forwarded to the extended indices, which will then return their results. See 12:5-32 of Gharachorloo et al.

In regards to Applicant's arguments towards claims 22 and 23, Examiner notes that the results from the search are from executing on a standard index when the estimate of the number of queries is greater than an estimate of a number of results (the threshold), and the results are from executing the query on extended indices when the estimate of the number of queries is less than the threshold.

Continuation of 13. Other: Examiner notes that dependent claims 2-3, 5-8, 10-13, 15, 17-18, and 20-21 all have a preamble beginning with the word 'a'. Dependent claims should begin with 'the'.

Examiner also notes that independent claims 22-23 are computer program products "tangibly embodied on an information carrier". This may raise a 101 issue, as the claim may be directed towards a signal. A signal is a form of energy. Energy is not one of the four categories of invention and therefore this claims may not be not statutory. Energy is not a series of steps or acts and thus is not a process. Energy is not a physical article or object and as such is not a machine or manufacture. Energy is not a combination of substances and therefor not a composition of matter..

C. Rones

CHARLES RONES
SUPERVISORY PATENT EXAMINER

1. Claims 6, 20, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gharachorloo et al. (US Patent 7,174,346) in view of Carey et al. (US Patent 5,956,706).

As to claim 6, Gharachorloo et al. teaches wherein:

The method further comprises receiving a value representing a desired number of results (see 11:30-58 and 12:5-13);

The query is to be executed on the subset of the data if the estimate of the number of results of the query is greater than a weighted subset estimate generated (see 11:30-58 and 12:5-13)

Gharachorloo et al. does not explicitly teach generated in accordance with the following estimation function:

$R^* \frac{N}{StripeSize} * F$, where R is the number of results desired (see Carey et al. 7:5-27, *$cost_p$(ALL) is a number of results desired*), N is the total number of possible results (*N is all the tuples of the first set of tuples)*, F is a safety factor (*$cost_p$ (1)*), and stripeSize is the size of the subset of the data (*ALL is a size of the stripe of data)* (see Carey et al. 7:5-27); and

Gharachorloo et al. as modified teaches:

determining whether to execute the query on the subset of data comprises:

generating the weighted subset estimate (see Carey et al. 7:5-27) ; and

determining whether the estimate of the number of results of the query is greater than the weighted subset estimate (see Gharachorloo et al. 11:30-58 and 12:5-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Gharachorloo et al. by the teaching of Carey et al., since Carey et al. teaches that "in other words, it is desirable that the specification of a cardinality limit in SQL require at most minimal or no changes to other operations of a database management system" (see 2:61-64).

As to claim 20, Gharachorloo et al. teaches wherein:

Generate a weighted subset estimate of performing a query on a data repository(see 11:30-58 and 12:5-13)

Gharachorloo et al. does not explicitly teach generated in accordance with the following estimation function:

$R^{*}\frac{N}{StripeSize} * F$, where R is the number of results desired (see Carey et al. 7:5-27, *$cost_p$(ALL) is a number of results desired*), N is the total number of possible results (*N is all the tuples of the first set of tuples)*, F is a safety factor (*$cost_p$ (1)*), and stripeSize is the size of the subset of the data (*ALL is a size of the stripe of data)* (see Carey et al. 7:5-27); and

Gharachorloo et al. as modified teaches:

Determine to execute the query on a subset of data in the data repository if the weighted subset estimate is greater than an estimate of the number of

results of the query (see Carey et al. 7:5-27 and Gharachorloo et al. 11:30-58 and 12:5-13); and

Determine to execute the query on the data repository if the estimate of the number of results of the query is greater than the weighted subset estimate (see Carey et al. 7:5-27 and Gharachorloo et al. 11:30-58 and 12:5-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Gharachorloo et al. by the teaching of Carey et al., since Carey et al. teaches that "in other words, it is desirable that the specification of a cardinality limit in SQL require at most minimal or no changes to other operations of a database management system" (see 2:61-64).

As to claim 23, Gharachorloo et al. does not teach wherein generating an estimate of a number of results of the query is generated in accordance with the following estimation functions:

est (NOT) = N – est(op),

Chen et al. teaches wherein generating an estimate of a number of results of the query is generated in accordance with the following estimation functions:

est (NOT) = N – est(op) (see Chen. 3.4.2, the selectivity can be estimated by al the results minus the results containing the operand),

Gharachorloo et al. as modified does not teach:

$$est(AND) = \frac{est(op_1) * est(op_2)}{N}$$

Zuzarte teaches:

$$est(AND) = \frac{est(op_1) * est(op_2)}{N}$$ (see 7:8-14. It is a conventional method)

Gharachorloo et al. as modified does not teach:

$$est(OR) = est(op_1) * est(op_2) - \frac{est(op_1) * est(op_2)}{N}$$

Keller et al. teaches:

$$est(OR) = est(op_1) * est(op_2) - \frac{est(op_1) * est(op_2)}{N}$$ (see paragraphs [0097]-[0100]. To estimate an "OR" query, one adds the first and second operation, and subtracts the value of ANDing both operations together. As an AND is taught above, this would have been obvious to one of ordinary skill in the art).

Gharachorloo et al. as modified teaches

Where op is an operand (see Zuzarte et al. 7:8-14), est() returns an estimate of a number of results matching the operator or operand in the parenthesis (see Zuzarte et al. 7:8-14), and N is the total number of possible results (see Zuzarte et al. 1:54-58, it is already divided over the total number of possible results to produce a percentage).

Determine to execute the query on a subset of data in the data repository if a weighted subset estimate is greater than the estimate of the number of results of the query (see 11:30-58 and 12:5-13); and

Determine to execute the query on the data repository if the estimate of the number of results of the query is greater than the weighted subset estimate (see 11:30-58 and 12:5-13).

Execute the query on the subset or the data repository (see Gharachorloo et al. 12:5-33).

Provide query results (see Gharachorloo et al. 12:5-33).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Gharachorloo et al. by the teaching of Chen et al., since Chen et al. teaches that "in a variety of applications ranging from optimizing queries on alphanumeric attributes to providing approximate counts of documents containing several query terms, there in an increasing need to quickly and reliably estimate the number of strings (tuples, documents, etc.) matching a Boolean query" (see Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Gharachorloo et al. by the teaching of Zuzarte, since Zuzarte teaches that the above method is a conventional method (see 7:8-14), and thus is well known in the art. In addition to this, Keller et al. simply provides basic equations for estimating Boolean cardinality. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included another algorithm describing how to calculate the cardinality of a Boolean operator.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Gharachorloo et al. in view of Keller et al., since Keller et al. teaches that "the result size estimates help with choosing between different access method alternatives for providing an optimum use of resources" (see paragraph [0006]). In addition to this, Keller et al. simply provides basic equations for estimating Boolean cardinality. It would have been obvious to one of ordinary skill in the art at the time the invention was made to

have included another algorithm describing how to calculate the cardinality of a Boolean operator.

2. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gharachorloo et al. (US Patent 7,174,346) in view of Chen et al. ("Selectivity Estimations for Boolean Queries"), further in view of, Zuzarte (US Patent 7,171,408), and further in view of Keller et al. (US Pre-Grant Publication 2007/0022136).

As to claim 22, Gharachorloo et al. does not teach wherein generating an estimate of a number of results of the query is generated in accordance with the following estimation functions:

est (NOT) = N – est(op),

Chen et al. teaches wherein generating an estimate of a number of results of the query is generated in accordance with the following estimation functions:

est (NOT) = N – est(op) (see Chen. 3.4.2, the selectivity can be estimated by al the results minus the results containing the operand),

Gharachorloo et al. as modified does not teach:

$$est(AND) = \frac{est(op_1) * est(op_2)}{N}$$

Zuzarte teaches:

$$est(AND) = \frac{est(op_1) * est(op_2)}{N}$$ (see 7:8-14. It is a conventional method)

Gharachorloo et al. as modified does not teach:

$$est(OR) = est(op_1) * est(op_2) - \frac{est(op_1) * est(op_2)}{N}$$

Keller et al. teaches:

$$est(OR) = est(op_1) * est(op_2) - \frac{est(op_1) * est(op_2)}{N}$$ (see paragraphs [0097]-[0100]. To estimate an "OR" query, one adds the first and second operation, and subtracts the value of ANDing both operations together. As an AND is taught above, this would have been obvious to one of ordinary skill in the art).

Gharachorloo et al. as modified teaches

Where op is an operand (see Zuzarte et al. 7:8-14), est() returns an estimate of a number of results matching the operator or operand in the parenthesis (see Zuzarte et al. 7:8-14), and N is the total number of possible results (see Zuzarte et al. 1:54-58, it is already divided over the total number of possible results to produce a percentage).

Determine to execute the query on a subset of data in the data repository if a weighted subset estimate is greater than the estimate of the number of results of the query (see 11:30-58 and 12:5-13); and

Determine to execute the query on the data repository if the estimate of the number of results of the query is greater than the weighted subset estimate (see 11:30-58 and 12:5-13).

Execute the query on the subset or the data repository (see Gharachorloo et al. 12:5-33).

Provide query results (see Gharachorloo et al. 12:5-33).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Gharachorloo et al. by the teaching of Chen et al., since Chen et al. teaches that "in a variety of applications ranging from optimizing queries on alphanumeric attributes to providing approximate counts of documents containing several query terms, there in an increasing need to quickly and reliably estimate the number of strings (tuples, documents, etc.) matching a Boolean query" (see Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Gharachorloo et al. by the teaching of Zuzarte, since Zuzarte teaches that the above method is a conventional method (see 7:8-14), and thus is well known in the art. In addition to this, Keller et al. simply provides basic equations for estimating Boolean cardinality. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included another algorithm describing how to calculate the cardinality of a Boolean operator.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Gharachorloo et al. in view of Keller et al., since Keller et al. teaches that "the result size estimates help with choosing between different access method alternatives for providing an optimum use of resources" (see paragraph [0006]). In addition to this, Keller et al. simply provides basic equations for estimating Boolean cardinality. It would have been obvious to one of ordinary skill in the art at the time the invention was made to

have included another algorithm describing how to calculate the cardinality of a Boolean operator.